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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,639	12/20/2000	Vlad Mitlin	3Com-72/2	5631

7265 7590 11/22/2004  
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EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/741,639

**Applicant(s)**

MITLIN ET AL.

**Examiner**

Emmanuel Bayard

**Art Unit**

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 9-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-25 and 33-49 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5 and 50-55 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau. (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/12/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This is in response to amendment filed on 7/23/04 in which claims 1-5, 9-31 and 33-55 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al U.S. Patent No 6,445,773 B1 in view of Wilson et al U.S. patent No 4,841,526.

As per claim 1, Liang et al discloses a method of determining data flow for a channel having a plurality of sub-channels in a multi-carrier system, comprising: determining data rate is the same as the claimed (data flow) (see col.1, lines 20-25 and col.3, lines 55-58) for the channel in terms of an input intensity  $L_m$ , and a probability of having a frame having no or a correctable number of errors  $p$ ; and adjusting channel performance (see col.1, lines 55-60 and col.5, lines 33-54) in accordance with the data rate (data flow).

However, Liang et al does not teach determining data flow based on maximum number of transmissions of  $k$  of the frames.

Wilson et al teaches flow based on maximum number of transmissions of k of the frames (see col.18, lines 14-23).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Wilson into Liang as to process only outstanding frames which relate to previously transmitted as taught by Wilson (see col.18, lines 20-23).

As per claim 4, Liang et al discloses method of determining data flow for a channel having a plurality of sub-channels in a multi-carrier system, comprising: determining an upstream (see col.1, lines 20-60 and col.5, lines 33-54) data rate is the same as the claimed (data flow); determining a downstream (see col.1, lines 20-60 and col.5, lines 33-54) data rate is the same as the claimed (data flow); and superimposing the upstream data flow and the downstream data flow to determine a (see col.1, lines 20-60 and col.5, lines 33-54) data rate is the same as the claimed (data flow).

However, Liang et al does not teach determining data flow based on maximum number of transmissions each frame.

Wilson et al teaches flow based on maximum number of transmissions each frame (see col.18, lines 14-23).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Wilson into Liang as to process only outstanding frames which relate to previously transmitted as taught by Wilson (see col.18, lines 20-23).

As per claim 5, the method of Liang and Wilson would includes wherein the channel uses forward error correction as to correct the channel for unsuccessful frames and accurately allocating the outstanding frames.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 26-31 and 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levin et al U.S. patent No 6,625,77 B1 in vie of Tiedemann, Jr et al U.S. patent No 6,317,435 B1.

As per claims 26 and 50, Levin et al discloses a method for transmitting data in a multi-carrier system between a downstream station and an upstream station, coupled by a channel having a plurality of sub-channels, comprising: transmitting an information frame from the upstream station (see fig.1 element 42 and col.1, lines 47-52 and col.5, lines 34-35); receiving the information frame at the downstream station (see fig.1 element 34 and col.5, lines 33-35); determining whether the information frame is non-correctable (see col.5, lines 43-67);and transmitting the information frame (see col.11, lines 46-59) if the information frame has not be transmitted a predetermined number of times from the upstream station.

However Levin et al does not teach transmitting a negative acknowledgement when the information frame is non-correctable.

Tiedmann, Jr et al teach transmitting a negative acknowledgement when the information frame is non-correctable (see col.4, lines 15-20 and col.9, lines 609-67 and col.11, lines 13-30).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Tiedmann into Levin as for the mobile station, which could not correctly demodulate the information, to notify the base station as taught by Tiedmann (see col.9, line 67-col.10, line 1)

As per claims 27 and 51, Levin et al does include wherein the predetermined number of times is determined in accordance with a measured signal-to-noise ratio value representing at least a subset of the sub-channels of the channel (see col.6, lines 2-3 and col.14, lines 19-30) and forward error correction parameters (see col.14, lines 36-37).

As per claims 28 and 52, Levin et al does include wherein the multi-carrier system is a discrete multi-tone system (see col.1, line 31).

As per claims 29 and 53, Levin et al does include wherein the discrete multi-tone system comprises the G-lite standard (see col.15, line 11)

As per claims 30 and 54 Levin et al and Tiedmann would include wherein the discrete multi-tone system comprises the G.dmt standard as to accurately demodulate the information.

As per claims 31 and 55, Levin et al wherein the forward error correction parameters are Reed-Solomon (see col.2, line 5) forward error correction parameters.

***Allowable Subject Matter***

2. Claims 9-25 and 33-49 are allowed over the prior art of record.
3. Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to anticipate or render obvious the following recited features: determining a bit load for at least one sub-channel based on a target symbol error rate, a maximum number of symbol errors that can be corrected  $t$ , a number of symbols in an information field  $K$  of a frame, and a maximum number of transmissions  $k$  of a frame, and a number of bits per sub-channel; and selecting the maximum number of symbol errors  $t$ , the number of symbols in the information field  $K$  of a frame and the maximum number of transmissions  $k$ , such that a coding gain is increased. Selecting a number ( $s$ ) of discrete multi-tone symbols in a forward-error-correction frame, a number ( $z$ ) of forward-error-correction control symbols in a discrete multi-tone symbol, and a maximum number of transmissions ( $k$ ) of a frame, based on a signal-to-noise ratio and a number of sub-channels associated with the signal-to-noise ratio.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2631

Bergenwall et al U.S. 2002/0001287 A1 teaches data transmission telecommunication.

Fukunage et al U.S. Patent N 6,487,316 B1 teaches a picture decoder.

Gulick U.S. patent No 6,690,676 B1 teaches a non addressed packet structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard  
Primary Examiner  
Art Unit 2631  
**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**

11/13/04

